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Farm Respiratory Hazards[1]

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Many people associate farming with fresh air and a healthy, robust environment in which to work and live. However, much of the air that farmers breathe is dirty and sometimes lethal. Farmers Lung and Organic Dust Toxicity Syndrome (ODTS) are names given to two farm occupational diseases caused by inhaling airborne mold spores. Silo Unloaders Syndrome is another name for ODTS because the condition often occurs during the unloading or uncapping of silos. Similar diseases associated with other agricultural occupations have been termed Bird Fanciers Lung, Mushroom Workers Lung, and Wood Pulp Workers Disease. See Figure 1 for dust depostition in the human respiratory system.

MOLD SPORES AND THE DISEASES THEY CAN CAUSE

Mold spores are produced by microorganisms which grow in baled hay, stored grain, or silage with a high moisture content (30 percent). They become active when temperatures reach 70 Fahrenheit in poorly ventilated areas. Farmers most often suffer from these diseases in winter and early spring because the molds have had time to develop in closed storage areas.

Heavy concentrations of mold spores appear as a dry, white or grey powder in grain or forage. When the feed is moved, billions of these microscopic sized particles become airborne and attach themselves to dust. These particles pass through the body's natural filtering mechanisms (nose, hair, and throat mucous) and accumulate in the lungs where they can cause an allergic type of pneumonia. Repeated attacks can lead to scarring of lung tissue which impairs its function. Such tissue damage is permanent.

ODTS and Farmers Lung are closely related diseases, but there are some differences. They are similar in routes of entry and in the symptoms they cause. Farmers Lung symptoms usually reoccur, and a person can become sensitized to the mold. This means it usually takes less exposure for a severe reaction with each succeeding incident.

The symptoms of Farmers Lung and ODTS are often striking, yet the diseases go unrecognized by many victims and misdiagnosed by physicians not familiar with farm health hazards. Victims and doctors alike often confuse Farmers Lung and ODTS with asthma attacks, pneumonia, or flu because the symptoms are similar.

EXPOSURE SYMPTOMS

Exposure to mold spores may produce the following symptoms: First, there is a delayed reaction of 3 to 8 hours during which the patient may develop shortness of breath; tightness in the chest; fatigue; a dry, unproductive cough; muscle ache, headache, chills and fever. The most serious stage of the reaction may last approximately 12 to 48 hours, but some effects are likely to linger for up to two weeks.

1. This document is Pennsylvania State University Fact Sheet Safety-26, Pennsylvania Cooperative Extension Service. For more information, contact Pennsylvania State University College of Agricultural Sciences, Agricultural Engineering Department, 246 Agricultural Engineering Building, University Park, PA 16802. Publication date: 1991.

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Acute exposure symptoms eventually disappear with no apparent lasting effect, particularly with first time or mild exposures. While ODTS is not thought to cause permanent lung damage, repeated episodes of Farmers Lung may. Since knowing which disease will attack is impossible to predict, both diseases must be considered very serious hazards. Occasional mild symptoms of both diseases are most often dismissed as bouts of flu or other illness. The result is that the diseases are often not properly diagnosed until the symptoms have become severe and constant.

MANAGEMENT PRACTICES

There are several management practices that can either help prevent the growth of mold spores or limit the damage they can cause. Using mold inhibitors, baling hay, ensiling crops, and harvesting and storing grains at the recommended moisture content limits mold spore growth. It also maximizes the quality of your feedstuffs. Converting to mechanical or automated feeding or feed handling systems can reduce the amount of airborne mold spores or can reduce human exposure. Wetting down materials before use may help keep spore distribution to a minimum.

Respiratory protection (see Figures 2 and 3) is the last line of defense against Farmers Lung and ODTS. The proper type respirator can protect those who have not contacted the diseases or help prevent the diseases from getting worse. Particulate respirators are available at your local pharmacy or from your agricultural chemical supplier. These are approved for protection against dust, such as asbestos and they provide inexpensive protection against mold spores. More expensive and sophisticated respiratory devices may be required occasionally. Commonly available disposable respirators for nuisance dusts are not effective against the tiny mold spores.

SUMMARY

Farmers Lung and ODTS are two of the most serious health hazards found on most farms. Yet, through good management practices and respiratory protection, you can completely avoid these diseases. Don't wait until you are permanently impaired before you take action!

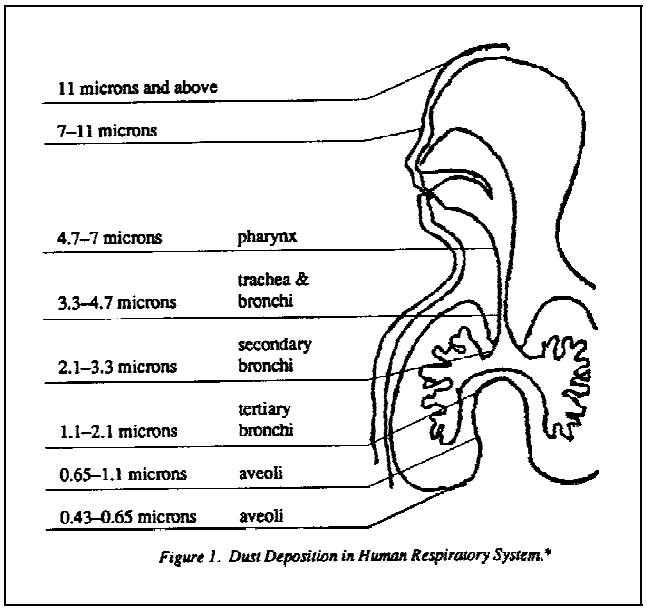

Figure 1. Dust deposition in the human respiratory system (drawing is adapted from Anderson Samplers, Inc. Technical Manual for Cascade Impactors, Atlanta, Ga).

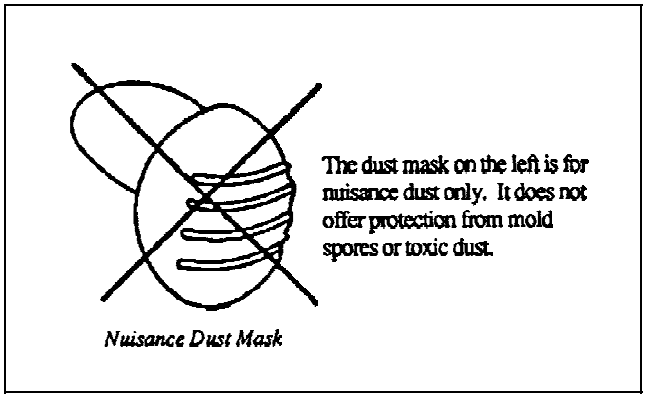

Figure 2. This dust mask is for nuisance dust only. It does not offer protection from mold spores or toxic dust.

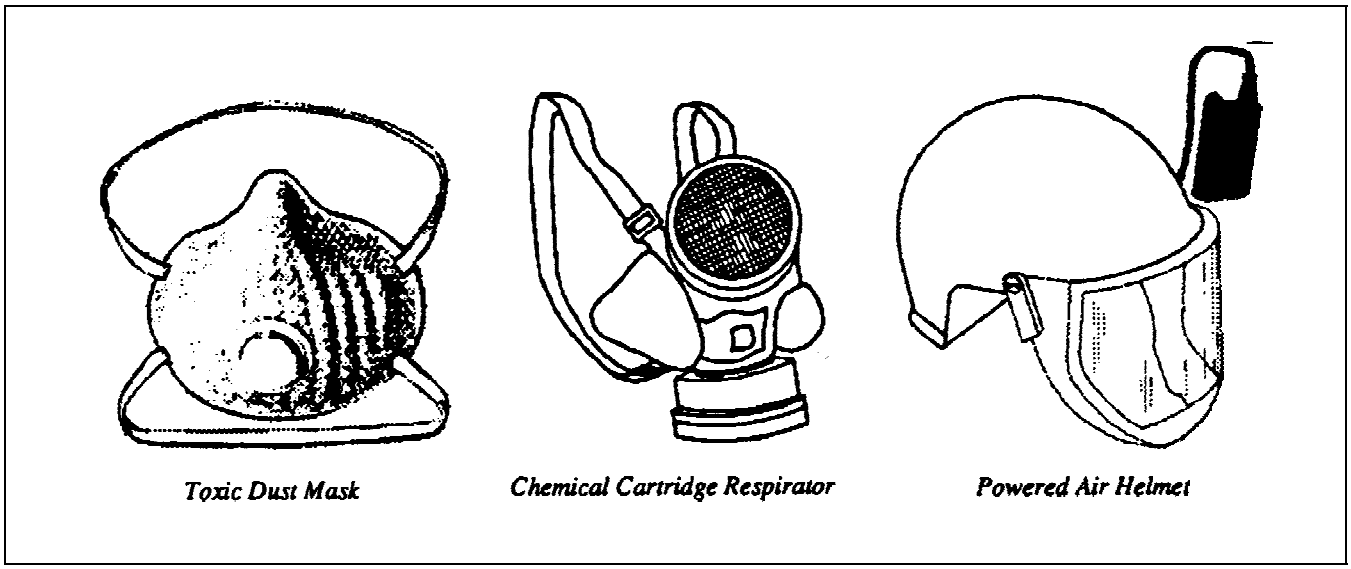

Figure 3. These respirators all offer effective protection against toxic dust. The primary differences are the quality of fit, the length of time the protection will be provided and the cost.